CLAIMS

1. A method of detecting the presence or absence of one or more target microbes in a liquid sample, said method comprising the steps of:

a) providing a powdered medium having one or more nutrient indicators and ingredients to support the growth of said target microbe, said one or more nutrient indicators being operable to alter a detectable characteristic in a medium/sample mixture when metabolized by the target microbes so as to confirm the presence or absence of target microbes in the sample; wherein said medium lacks a gelling agent and said medium is free of target microbes before mixing with a sample;

b) providing a liquid sample;

c) combining said powdered medium and said liquid sample to form a medium/sample mixture; and

d) observing the mixture for the presence or absence of said detectable characteristic wherein the presence of said detectable characteristic results from one or more target microbes metabolizing one or more of said nutrient-indicators.

2. The method of claim 1, wherein said liquid sample is a water sample.

3. The method of claim 1, wherein said liquid sample is an environmental sample.

4. The method of claim 1, wherein said liquid sample is a first generation water sample.

5. The method of claim 1, wherein said liquid sample is a natural water sample.

6. The method of claim 1, wherein said one or more nutrient indicators actively participates in the growth of said target microbe.

7. The method of claim 1, further comprising, after step (c), the step of incubating said medium/sample mixture at temperatures operable to support the growth of said target microbe.

8. The method of claim 1, wherein the population growth rate of said target microbe during log phase is at least 10 times that of any non-target microbe present in said sample.

9. The method of claim 1 wherein the population growth rate of said target microbe during log phase is at least 10,000 times that of any non-target microbe present in said sample.

10. The method of claim 1, wherein said detectable characteristic is a particular color of said medium/sample mixture.

11. The method of claim 1, wherein said detectable characteristic is fluorescence.

12. The method of claim 1, wherein said target microbe is fecal bacteria.

13. The method of claim 1, wherein said target microbe is coliform bacteria.

14. The method of claim 1, wherein said target microbe is E. coli.

15. The method of claim 1, wherein said nutrient indicator is a substrate for β-glucuronidase.

16. The method of claim 15, wherein said nutrient indicator is selected from the group consisting of: orthonitrophenyl-B-D-glucuronide; B-napthalamide-B-D-glucuronide; α–napthol-B-D-glucuronide; and methylumbelliferyl-B-D-glucuronide.

17. The method of claim 1, wherein said target microbe is Streptococcus faecalis.

18. The method of claim 1, wherein said nutrient indicator is a substrate for L-pyronidyl aminopeptidase.

19. The method of claim 18, wherein said nutrient indicator is selected from the group consisting of: orthonitrophenyl-B-L-pyronidyl; B-napthalamide-B- L-pyronidyl; α–napthol-B-L-pyronidyl; and methylumbelliferyl-B- L-pyronidyl.

20. The method of claim 1, wherein said target microbe is Gram negative bacteria.

21. The method of claim 1 wherein said nutrient indicator is a substrate of L-alanine aminopeptidase.

22. The method of claim 21 wherein said nutrient indicator is selected from the group consisting of: L-alanine-B-orthonitrophenyl; B-napthalamide-B-L-alanine; α–napthol-B- L-alanine; and methylumbelliferyl-B- L-alanine.

23. A method of detecting the presence or absence of one or more target microbes in a water sample, said method comprising the steps of:

a) providing a powdered medium having one or more nutrient indicators and ingredients to support the growth of said target microbe, said one or more nutrient indicators comprising a substrate for β-glucuronidase which is operable to alter the color of a medium/sample mixture when metabolized by the target microbes so as to confirm the presence or absence of target microbes in the sample, wherein said one or more nutrient indicators actively participates in the growth of said target microbe, wherein said medium lacks a gelling agent and wherein said medium is free of target microbes before mixing with a sample;

b) providing a water sample;

c) combining said powdered medium and said water sample to form a medium/sample mixture; and

d) observing the color of the mixture, wherein altered color results from one or more target microbes metabolizing said substrate for β-glucuronidase.

24. The method of claim 23, wherein said water sample is an environmental sample.

25. The method of claim 23, wherein said water sample is a first generation water sample.

26. The method of claim 23, wherein said water sample is a natural water sample.

27. The method of claim 23, further comprising, after step (c), the step of incubating said medium/sample mixture at temperatures operable to support the growth of said target microbe.

28. The method of claim 23, wherein the population growth rate of said target microbe during log phase is at least 10 times that of any non-target microbe present in said sample.

29. The method of claim 23 wherein the population growth rate of said target microbe during log phase is at least 10,000 times that of any non-target microbe present in said sample.

30. The method of claim 23, wherein said target microbe is fecal bacteria.

31. The method of claim 23, wherein said target microbe is coliform bacteria.

32. The method of claim 23, wherein said target microbe is E. coli.

33. The method of claim 23, wherein said nutrient indicator is selected from the group consisting of: orthonitrophenyl-B-D-glucuronide; B-napthalamide-B-D-glucuronide; α–napthol-B-D-glucuronide; and methylumbelliferyl-B-D-glucuronide.